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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application

N. IWAMI et al

Serial No. 10/712,031

Filed: November 14, 2003

For: STORAGE SYSTEM

PETITION TO MAKE SPECIAL
UNDER 37 CFR §1.102(MPEP §708.02)

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Applicants hereby petition the Commissioner to make the above-identified application special in accordance with 37 CFR §1.102(d). Pursuant to MPEP §708.02(VIII), Applicants state the following.

(A) This Petition is accompanied by the fee set forth in 37 CFR §1.17(i). The Commissioner is hereby authorized to charge any additional payment due, or to credit any overpayment, to Deposit Account No. 50-1417.

(B) All claims are directed to a single invention. If the Office determines that all claims are not directed to a single invention, Applicant will make an election without traverse as a prerequisite to the grant of special status.

(C) A pre-examination search has been conducted. The search was directed to a storage system comprising:

an interface unit connected to a computer;

a first controller which processes a file operation;

a second controller which processes the read/write of data for a storage; and

an internal network which accesses said interface unit, said first controller and said second controller mutually,

wherein said interface unit selects a transfer destination of a frame transmitted from said computer, from one of said first controller and said second controller, and transfers said frame through said internal network to the selected controller.

The search of the above features was conducted in the following areas:

Class	Subclasses	Description
707/		**DATA PROCESSING: DATABASE AND FILE MANAGEMENT OR DATA STRUCTURES**
	1	DATABASE OR FILE ACCESSING
	100	DATABASE SCHEMA OR DATA STRUCTURE
709/		**ELECTRICAL COMPUTERS AND DIGITAL PROCESSING SYSTEMS: MULTIPLE COMPUTER OR PROCESS COORDINATING**
	200	MULTICOMPUTER DATA TRANSFERRING
	213	- Multicomputer data transferring via shared memory

218	- Using interconnected networks
249	- Multiple network interconnecting
250	- Network-to-computer interfacing

The above subclasses represent areas deemed to contain subject matter of interest to one or more of the search features. Please note that relevant references may be classified outside of these areas. The integrity of the search is based on the records as presented to us by the United States Patent and Trademark Office (USPTO). No further integrity studies were performed. Also a key word search was performed on the USPTO full-text database including published U.S. patent applications.

(D) The following is a list of the references deemed most closely related to the subject matter encompassed by the claims:

U.S. Patent Application Publication No.	Inventor(s)
2002/0065916	Ooe et al
2003/0023784	Matsunami et al
2003/0028731	Spiers et al
2003/0105767	Sonoda et al
2003/0225735	Weber

A copy of each of these references is enclosed.

(E) It is submitted that the present invention is patentable over the references for the following reasons.

The present invention is directed to a storage system as recited in independent claims 1 and 18 of the present application. The present invention overcomes the problem posed by a Network Attached Storage (NAS) server that is to be accessed and the port of the TCP/IP processor that has a uniquely set address provided for the NAS. When the frequency of accessing the NAS server rises or when the quantity of data to be transferred increases, processing performance of the TCP/IP processor or the NAS server creates a bottleneck and lowers response (see specification page 3, lines 6-10). Therefore, the present invention utilizes an interface unit which processes the communication protocol of a frame to be transferred between a storage system and a computer (see specification page 3, lines 16-22).

As recited in claim 1, the storage system includes an interface unit connected to a computer, a first controller which processes a file operation, a second controller which processes the read/write of data for a storage, and an internal network which accesses the interface unit, the first controller and the second controller mutually. The interface unit selects a transfer destination of a frame transmitted from the computer, from one of the first and second

controllers and transfers this frame through the internal network to the selected controller.

Claim 18 is similar to claim 1, but recites a second interface unit instead of a second controller which processes the read/write of data for the storage. In addition, claim 18 recites interfacing that selects a transfer destination of a frame transmitted from the computer, from one of the controller and the second interface unit, and transfers the frame through the internal network to the selected controller or the second interface unit.

It is submitted that both claims 1 and 18 patentably define the present invention over the prior art. In particular, the inventions claimed therein avoid the problem of creating a bottleneck at the TCP/IP processor or the NAS server as in the prior art. In addition, the cited references, whether taken individually or in combination, fail to render claims 1 and 18 unpatentably. These references are briefly discussed below.

The patent application publication to Ooe et al (2002/0065916) provides for a *Storage System*. Described is a storage system wherein the redirector 11, NFS servers 12-1, shared memory 15 and secondary storage units 17 are all connected to one another through an internal network 14 (See

Fig. 1). The redirector comprises a processor that is capable of analyzing the request and deciding the destination NFS server (see paragraphs 0045 and 0046).

The patent application publication to Matsunami et al (2003/0023784) provides for a *Storage System Having a Plurality of Controllers*. A disk controller receives access requests from a computer by way of a block I/O interface; and a file server receives access requests from the computer by way of the file I/O interface; and a connection unit is connected between the disk controller and file server so as to connect them to plural disk drive units (see paragraphs 0038 and 0101).

The patent application publication to Spiers et al (2003/0028731) provides for a *Block Data Storage within a Computer Network*. Discussed is a compute structure that comprises a network attached storage (NAS) device capable of transmitting and receiving communications from the network. The NAS comprises a block storage device interface capable of transmitting and receiving communications from a block data storage device (see paragraphs 0030 and 0033).

The patent application publication to Sonoda et al (2003/0105767) provides for a *Storage System and Control Method*. Discussed is a storage system 100 which comprises file interface boards 110, 120, 130 loaded with file servers 113,

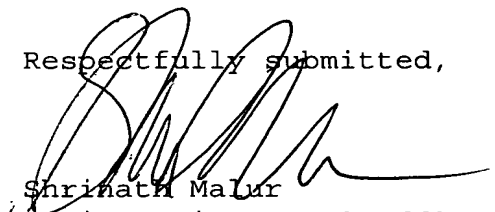
123, 132, iSCSI board 140, FC/SCS1 interface board 150, disks 160, 170, and shared memory 180. All of the above are connected to one another through an internal network 190. The block interfaces can execute I/O requests in disk blocks and file interfaces can execute I/O requests in disk blocks and file interfaces can execute I/O requests in files (see Fig. 1, and paragraphs 0033 and 0034).

The patent application publication to Weber (2003/0225735)provides for an *Apparatus and Method for Providing Transparent Sharing of Channel Resources by Multiple Host Machines Utilizing Mixed Mode Block and File Protocols.* Discusses is a storage complex which provides for transparent mixed mode data storage transport. The system comprises an input/output module coupled to the host device for translation of transported data, a NAS engine (object converting element) capable of converting between object and block data based transports, a switch coupled to the input/output module and object converting element for propagating data, and a storage element capable of providing data storage which is coupled to the switch and supports transporting object and block based data storage transport (see paragraphs 0017, 0027, 0028, 0029, 0031, 0038 and 0040).

CONCLUSION

It is submitted that the requirements of 37 CFR §1.102(d) have been satisfied. Accordingly, it is requested that this petition to make special be granted and the application examined according to the appropriate guidelines.

Respectfully submitted,



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